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AUTHOR Beers, Joan S.; Reardon, Francis J.
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ABSTRACT

The Harrisburg, Pennsylvania, School District reorganized in the fall of 1970 to attain, among other things, racial balancing in all of its schools. Changes in policy and practice were comprehensive. The district adopted the 10 goals of quality education, developed by the Pennsylvania Department of Education, as the basis for program planning and implementation. In order to examine the progress of pupils toward achieving these goals and in order to evaluate the effects of school district reorganization on pupils' achievement and attitudinal patterns, two analyses were conducted. The first examined basic skill patterns of one class of Harrisburg pupils as they progressed from the beginning of grade 5 in 1970 to the end of grade 6 in 1972. Separate analyses were performed for black and white pupils. The second examined attitudinal patterns of one class of Harrisburg pupils as they progressed from the beginning of grade 5 in 1970 to the end of grade 6 in 1972. Separate analyses were performed for black and white pupils. Three areas were included: attitude toward self, attitude towards others who differ in race and social class, and, attitude toward school and learning. Attitudinal scores for the Harrisburg sample were compared to scores from a statewide longitudinal study. (Author/JM)

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ACHIEVEMENT AND ATTITUDINAL CHANGES ASSOCIATED WITH SCHOOL DISTRICT REORGANIZATION

Joan S. Beers and Francis J. Reardon
Pennsylvania Department of Education
Harrisburg, Pennsylvania

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The Harrisburg, Pennsylvania, School District reorganized in the fall of 1970 to attain, among other things, racial balancing in all of its schools. Changes in policy and practice were comprehensive. Pupils were reassigned to school buildings by race, sex and family income. The traditional K-6 elementary schools, two junior high schools and two senior high schools were realigned into early childhood centers, prekindergarten to grade 2; elementary schools, grades 3 to 6; one intermediate school; one high school campus for grades 9 and 10 and one high school campus for grades 11 and 12. More minority teachers and administrators were hired and new programs were introduced. A bus system which served 27 percent of the more than 12,000 pupils was expanded to serve 41 percent.

As Donoho and Dentler (1972) observed,

> For a city public school district with severe racial imbalance in all but two if its 18 schools; for a city with a rapidly growing, already very large economically poor black population, and for a city running out of education monies--these were bold moves! (p. 31)

A definition of the educational goals that would be attempted under the new organization became important. The district adopted the 10 goals of quality education, developed by the Pennsylvania Department of Education, as the basis for program planning and implementation.

Pennsylvania's ten goals of quality education emphasize that quality education should:

I. Help every child acquire the greatest possible understanding of himself or herself and appreciation of his or her worthiness as a member of society.

II. Help every child acquire understanding and appreciation of persons belonging to other social, cultural and ethnic groups.

III. Help every child acquire, to the fullest possible extent, mastery of the basic skills in the use of words and numbers.

IV. Help every child acquire a positive attitude toward the learning process.

V. Help every child acquire the habits and attitudes associated with responsible citizenship.

VI. Help every child acquire good health habits and an understanding of the conditions necessary for maintaining of physical and emotional well-being.

VII. Give every child opportunity and encouragement to be creative in one or more fields of endeavor.

VIII. Help every child understand the opportunities open to him or her to prepare for a productive life and help each child to take full advantage of these opportunities.

IX. Help every child to understand and appreciate as much as possible of human achievement in the natural sciences, the social sciences and the humanities and the arts.

X. Help every child to prepare for a world of rapid change and unforeseeable demands in which continuing education throughout adult life should be a normal expectation.

In order to examine the progress of pupils toward achieving these goals and in order to evaluate the effects of school district reorganization on pupils' achievement and attitudinal patterns, we conducted the following analyses:

1. Basic skill patterns on one class of Harrisburg pupils as they progressed from the beginning of grade 5 in 1970 to the end of grade 6 in 1972 were examined. Separate analyses were performed for black pupils and for white pupils.
2. Attitudinal patterns of one class of Harrisburg pupils as they progressed from the beginning of grade 5 in 1970 to the beginning of grade 7 in 1972 were examined in three areas:
   a. attitude toward self,
   b. attitude toward others who differ in race and social class,
   c. attitude toward school and learning.

Attitudinal scores for the Harrisburg sample of pupils were compared to scores from a statewide longitudinal study.

ACHIEVEMENT PATTERNS

METHOD

All fifth grade pupils took the Stanford Achievement Test (SAT) in October of 1970, a few weeks after the school year began under the new organizational structure. For this study, the Fall 1970 SAT scores are considered pretest scores since they are more reflective of previous school experience than they are of any influence the new environment may have.

The same group of pupils took the Stanford Achievement Test as sixth grade pupils in March of 1972, almost two school years after the new organizational structure was in effect. The Spring 1972 SAT scores are considered posttest scores for this study.

Scores on seven subtests of the SAT were examined and compared. The most appropriate method for analyzing pupils' growth is to compare a pupil's present performance with his previous performance. To do this, we computed, for each pupil on each subtest, a predicted score for the end of sixth grade based upon each pupil's actual score at the beginning of fifth grade. We obtained each pupil's predicted growth score by dividing the obtained grade equivalent score on each subtest at the beginning of fifth grade by 5.1 (five years-one month), the grade level at the pretesting time, and multiplying this quotient by the interval between the pretesting and the posttesting, 1.6 (one year-six months).

$$\text{Predicted Growth Score} = \frac{\text{Pretest Score}}{5.1} \times 1.6$$

The predicted posttest score is equal to the sum of the pretest score plus the predicted growth score.

$$\text{Predicted Posttest Score} = \text{Pretest Score} + \text{Predicted Growth Score}$$

Using this method of analysis we can begin to make inferences as to whether pupils' cognitive growth after school district reorganization is consistent with, more than or less than growth before reorganization.

RESULTS

Table 1 presents the results for all sample pupils when Fall 1970 SAT scores were compared to Spring 1972 SAT scores. The results are arranged in order of the magnitude of the gain scores from the highest gains to the lowest gains.

Insert Table 1 Here.

From Table 1 we find that in Arithmetic Concepts growth was greatest, was consistent with national norms and was greater than predicted.

In Arithmetic Applications, Spelling, Language and Paragraph Meaning, growth was consistent with previous growth or about as predicted.

In Arithmetic Computation and Word Meaning, growth was less than consistent with previous growth and exactly half of the growth rate in Arithmetic Concepts.

Table 2 presents the results for white pupils only when Fall 1970 SAT scores are compared to Spring 1972 SAT scores.

Insert Table 2 Here.

When scores for white pupils were analyzed separately, the pattern of growth paralleled that for all pupils. Growth was greatest in Arithmetic Concepts and least in Word Meaning and Arithmetic Computation. In five of the seven areas growth was consistent with previous growth. In two areas, growth was less than predicted.

Table 3 presents the results for black pupils only when Fall 1970 SAT scores are compared to Spring 1972 SAT scores.

Insert Table 3 Here.

When scores for black pupils were analyzed separately, the pattern of growth paralleled that for all pupils as well as that for white pupils.

DISCUSSION

There is evidence from the results that achievement gains for black pupils, in comparison to gains for their white counterparts, were enhanced during the one and one-half years following school district reorganization. Black pupils' pretest grade equivalent scores in all areas were behind white pupils' by at least two months and were behind as much as eight months in Arithmetic Applications and six months in Arithmetic Concepts. The lower grade equivalent scores for black pupils is evidence that black pupils were not gaining as much as white pupils during their first four years of schooling in a segregated school system. During their fifth and sixth years in a desegregated school system, the differences between white and black pupils' gains were reduced to 0 in three areas, Arithmetic Concepts, Spelling and Paragraph Meaning. In Arithmetic Computation and Word Meaning, the discrepancies between black and white pupils' gains were reduced to one month. Only in Language and Arithmetic Applications did the discrepancies remain substantial, four months and five months respectively. White pupils, in five out of seven areas, achieved as well after desegregation as they achieved prior to desegregation.

ATTITUDINAL PATTERNS

METHOD

All fifth grade pupils took three attitudinal inventories in the Fall of 1970, a few weeks after the school year began under the new organizational structure. For this study the 1970 Fall scores are considered pretest scores.

The same group of pupils took the same three inventories as seventh grade pupils in the Fall of 1972. For this study the Fall 1972 scores are considered posttest scores.

Scores on three inventories were examined and compared:

1. Self-Esteem as measured by the Coopersmith Self-Esteem Inventory (revised by the Pennsylvania Department of Education). The items reflect the degree to which pupils say they feel confidence in their ability to fulfill ambitions, feel confidence about their personal attributes, feel confidence about their self image in relation to teachers and the school setting and feel confidence in relating to parents and peers. The Self-Esteem Inventory has 53 items and a reliability coefficient (Coefficient Alpha) of .87.
2. Understanding Others as measured by an inventory developed for the Pennsylvania Department of Education by Educational Testing Service. The items reflect pupils' attitudes toward those who differ in race, religion and socioeconomic status. The Understanding Others Inventory has 9 items and a reliability coefficient (Coefficient Alpha) of .77.
3. Interest in School as measured by an inventory developed for the Pennsylvania Department of Education by Educational Testing Service. The items reflect pupils' perceptions of the school climate, attitudes toward school assignments and perceptions of the learning process. The Interest in School Inventory has 17 items and a reliability coefficient (Coefficient Alpha) of .75.

Changes in attitudes over time can be due to maturation or to any number of experiences to which young people are introduced as they progress from the fifth to the seventh grade. What constitutes "attitudinal growth" is difficult to define without some basis for comparison.

For this study, we were fortunate to have such a basis for comparison, a longitudinal study conducted by Richard Kohr (1972). Kohr administered the same three inventories to 654 pupils in 20 school buildings in 1969 and again in 1971, as the pupils progressed from the fifth to the seventh grade.

Using the statewide sample as a basis for comparing changes in pupils' attitudes over time we can begin to make inferences as to whether changes in attitudes for the Harrisburg pupils are consistent with, less than or more than what can be considered "normal change" over time.

Table 4 presents the pretest means, posttest means and t test results for the Harrisburg sample and the statewide sample on the three attitudinal inventories.

Insert Table 4 Here.

From Table 4 we see that the Harrisburg fifth grade pupils scored significantly lower than the statewide sample of pupils at the initial testing time. Two years later, the Harrisburg pupils displayed positive attitudinal changes in all three areas. In Self-Esteem, the statewide posttest mean was significantly higher than the Harrisburg posttest mean, but the gap between the means was reduced from 4 points to 2 points. In Understanding Others and Interest in School the Harrisburg pupils did not score significantly different from the statewide sample of pupils on the posttest.

Interestingly, for the statewide sample, the Interest in School posttest mean was lower than the pretest mean. For the Harrisburg sample, however, the Interest in School posttest mean was higher than the pretest mean.

DISCUSSION

There is evidence from the results to suggest that positive changes in self-esteem, understanding others and interest in school occurred for one class of Harrisburg pupils during their first two years in a desegregated school system. The significantly lower attitude scores at the beginning of fifth grade indicate that during their first four years in a segregated school system, the Harrisburg pupils did not feel as positively as pupils statewide about themselves, about others and about school. After two years in a desegregated system, there were no differences between the Harrisburg pupils and the statewide sample in attitudes toward others and attitudes toward school and learning.

SUMMARY AND IMPLICATIONS

Positive changes occurred for one class of Harrisburg pupils as they progressed from the fifth to the seventh grade in a desegregated school system. Prior to desegregation, the discrepancies between black and white pupils' achievement gains were substantial. During the one and one-half years following desegregation, in five out of seven areas, black pupils' achievement gains were equal to or differed by only one month from white pupils' gains. White pupils, in five out of seven areas, achieved as well after desegregation as they achieved prior to desegregation.

Prior to desegregation, the Harrisburg pupils, in comparison to a statewide sample of pupils, did not feel as positively about themselves, about others and about school. Two years after desegregation, there were no

differences between the Harrisburg pupils and pupils statewide in attitudes toward others and attitudes toward school.

We cannot, from the data, attribute these positive changes to any one factor. The Harrisburg School District reorganization plan was a comprehensive one--bodies were reshuffled, busing was expanded, buildings were realigned, new programs were incorporated and an administrative team concept was introduced. Nevertheless, the results, though not startling, are encouraging for all school districts who dare to take bold moves to better provide equality of educational opportunity for all of their students.

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T A B L E 1

Gain, Predicted Gain, and Pretest
and Posttest SAT Scores for All Pupils

N=658

SAT	ACTUAL GAIN IN 1 YEAR 6 MONTHS	PREDICTED GAIN IN 1 YEAR 6 MONTHS	1970 GRADE EQUIVALENT 5.1 (National Norm)	1972 GRADE EQUIVALENT 6.7 (National Norm)
Arithmetic Concepts	1 year 6 months	1 year 1 month	3.6	5.2
Arithmetic Applications	1 year 1 month	1 year 2 months	3.7	4.8
Spelling	1 year 1 month	1 year 2 months	4.0	5.1
Language	1 year 0 months	1 year 1 month	3.4	4.4
Paragraph Meaning	1 year 0 months	1 year 2 months	3.8	4.8
Arithmetic Computation	0 year 8 months	1 year 1 month	3.7	4.5
Word Meaning	0 year 8 months	1 year 3 months	4.0	4.8

TABLE 2

Gain, Predicted Gain, and Pretest and Posttest SAT Scores for White Pupils N=221

SAT	ACTUAL GAIN IN 1 YEAR 6 MONTHS	PREDICTED GAIN IN 1 YEAR 6 MONTHS	1970 GRADE EQUIVALENT 5.1 (National Norm)	1972 GRADE EQUIVALENT 6.7 (National Norm)
Arithmetic Concepts	1 year 6 months	1 year 2 months	4.0	5.6
Arithmetic Applications	1 year 4 months	1 year 2 months	4.0	5.4
Language	1 year 2 months	1 year 2 months	3.8	5.0
Spelling	1 year 1 month	1 year 3 months	4.1	5.2
Paragraph Meaning	1 year 1 month	1 year 3 months	4.2	5.3
Arithmetic Computation	0 year 9 months	1 year 2 months	3.9	4.8
Word Meaning	0 year 8 months	1 year 4 months	4.4	5.2

TABLE 3

Gain, Predicted Gain, and Pretest and Posttest SAT Scores for Black Pupils

N=437

SAT	ACTUAL GAIN IN 1 YEAR 6 MONTHS	PREDICTED GAIN IN 1 YEAR 6 MONTHS	1970 GRADE EQUIVALENT 5.1 (National Norm)	1972 GRADE EQUIVALENT 6.7 (National Norm)
Arithmetic Concepts	1 year 6 months	1 year 2 months	3.4	5.0
Paragraph Meaning	1 year 1 month	1 year 2 months	3.9	5.0
Spelling	1 year 0 months	1 year 1 month	3.6	4.6
Language	0 year 9 months	1 year 1 month	3.6	4.5
Arithmetic Applications	0 year 8 months	1 year 0 months	3.2	4.0
Arithmetic Computation	0 year 8 months	1 year 1 month	3.6	4.4
Word Meaning	0 year 7 months	1 year 1 month	3.9	4.6

T A B L E 4

Pretest Mean, Posttest Mean and t for
Attitude Inventories

ATTITUDE	STATEWIDE PRETEST MEAN	HARRISBURG PRETEST MEAN	t	STATEWIDE POSTTEST MEAN	HARRISBURG POSTTEST MEAN	t
Self-Esteem	87.73	83.75	8.07*	88.86	86.99	4.08*
Understanding Others	32.90	30.95	5.65*	34.43	34.37	0.22
Interest in School	59.95	57.66	3.95*	57.75	58.09	-0.61

*$p < .01$

Statewide N 654
Harrisburg N 600